

REMARKS

Claims 1-16, 19-23, 25-29, and 45-49 are pending and are rejected. Claims 20, 22, and 45 are amended. Claims 1-19 and 23-29 are canceled. Claims 50-52 are added. Reconsideration and allowance of Claims 20-22, 45-46, and 49-52 are respectfully requested.

Claim Rejections under 35 USC §103

Claims 1-4, 6, 20-21, 23 and 27-29 are rejected under 35 USC §103(a) as being unpatentable over "A Versatile Data String-Search VLSI," written by Masaki Hirata and published by IEEE in April 1988, (hereinafter referred to as Hirata) in view of U.S. Patent No. 7,225,188 to Gai et al (Gai) and further in view of U.S. Patent 6,785,677 to Fritchman (Fritchman).

Claims 7-16, 19, and 25-26 are rejected under 35 USC §103(a) as being unpatentable over Hirata in view of Gai and Fritchman, and further in view of U.S. Patent 7,134,143 to Stellenberg et al (Stellenberg).

Claims 45-46 and 49 are rejected under 35 USC §103(a) as being unpatentable over Hirata in view of Gai, Fritchman, and further in view of U.S. Patent 5,712,971 to Stanfill et al (Stanfill) and "Fast Routing Table Look-up Using CAMs" written by McAuley.

The patentability of remaining independent claims 20 and 45 are discussed separately below.

Independent Claim 20

Applicant's Claim 20 recites, in part:

converging all branches of the state machine, for a given stored pattern, to a single next state when a first number of the characters are matched to the contents of a state field to all state transitions of the branches.

None of the applied references discloses or even mentions the above-recited limitation of Claim 20. Indeed, the Office Action has not pointed to any language in any

of the applied references that teaches "converging all branches of the state machine, for a given stored pattern, to a single next state when a first number of the characters are matched to the contents of a state field to all state transitions of the branches," and therefore Claim 20 is patentable.

Claims 21-22 and 52 depend from Claim 20 and therefore distinguish over the cited references for at least the same reasons as Claim 20.

Independent Claim 45

Applicant's Claim 45 recites, in part:

a first-in-first-out (FIFO) storage element for storing the plurality of characters;
a register coupled to the FIFO storage element and the TCAM;
a rollback circuit coupled to the FIFO storage element; and
a current prefix register.

First, none of the applied references disclose or teach a "current prefix register," as recited in Claim 45.

Second, none of the applied references disclose or teach a "rollback circuit coupled to the FIFO," as recited in Claim 45.

The Office Action concludes that Stanfill discloses a "rollback circuit" at col. 10, lns 55-67.

However, as noted by the Office Action, Stanfill's rollback command is used to undo the last operation. More specifically, Stanfill teaches using the rollback command to undo any changes made to the database by the operating software.¹ In contrast, Applicant's Claim 45 discloses a "rollback circuit coupled to the FIFO storage element," which in turn is part of "control circuitry to receive a text string having a plurality of characters."

The Office Action's stated reason for combining Stanfill's rollback command with the teachings of Hirata and Gai is to "be able to undo the last operation."

¹ Stanfill states at col. 10, lines 48-51: The driver program 14 may issue a Rollback command, which will place the system in its state as of the start of the current phase, undoing any changes to files/databases, as described above.

However, in a search operation using either the architectures of Hirata or Gai, it would not be desirable to “undo” the last compare operation or to undo the last state transition, as this would unnecessarily slow the search speed. Indeed, the Office Action's proposed combination of Stanfill with Hirata, Gai, Fritchman, and McAuley would not result in the structure recited in Applicant's Claim 45.

Accordingly, because the cited references do not disclose or teach a “current prefix register” or a “rollback circuit” as recited in Claim 45, Applicant's Claim 45 is patentable over the cited references.

Claims 46 and 49-51 depend from Claim 45 and therefore distinguish over the applied references for at least the same reasons as Claim 45.

CONCLUSION

In light of the above remarks, it is believed that Claims 20-22, 45-46, and 49-52 are allowable, and therefore a Notice of Allowance of Claims 20-22, 45-46, and 49-52 is respectfully requested. If the Examiner's next action is other than allowance as requested, the Examiner is requested to call the undersigned at (408) 236-6646.

Respectfully submitted,

A handwritten signature in black ink, appearing to be 'W. Paradise III', with a long horizontal line extending to the right.

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